

# CLASSROOM

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## Pike Central team wins grant to develop disaster shelter

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Ray Niehaus, teacher of Pike Central's "Project Lead the Way," and nine students are among 35 finalists to receive a Lemelson-MIT InvenTeams grant.

The team of students will receive a \$10,000 grant to develop their idea — a disaster relief shelter for four people.

"It will consist of wind and solar energy and a water filtration system," Niehaus said. "This relief shelter will fold down, weigh no more than 150 pounds and will be able to be set up in 15 minutes."

Niehaus said the Lemelson-MIT InvenTeams project approached him to submit an application because his students are already working on large projects, including seeking some patents.

Currently they are working to convert a



From left to right, Willy Klueg, Jessica D'Esposito, teacher Ray Niehaus and C.M. Brown are part of the Pike Central team working to develop a prototype disaster shelter. Brown is in charge water purification, Klueg, of wind and solar energy and D'Esposito is the project leader.

military Humvee from diesel to a diesel/electric-hybrid. He said of the 620 students who attend Pike Central 180 are in the engineering program and 108 are in the biomed

program of the Project Lead the Way, a national program which prepares students to be innovative leaders in science, technology, engineering and mathematics.

For the grant project "we currently have two house designs and we will choose which one to go forth with," Niehaus said. "The students are coming up with ideas, brainstorming and dividing themselves into groups when deciding who will generate the shelter design, the water purification system and the solar plans.

"I believe that if you give students an opportunity they will take it and run."

Only four companies in North America have the material that will be used to construct the shelter, Niehaus said.

The Lemelson-MIT InvenTeams grant is designed to help students invent technological solutions to real-world problems. The first grants were issued in 2002 and about 95 high school teams from Alaska to New York have participated.

Niehaus believes the grant is an oppor-



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tunity for his students to demonstrate that they can invent a technological solution to a real-world problem and prove they don't follow, they lead. This is the first time an Indiana high school has been selected for the competition. Pike Central's was one of more than 100 applications submitted.

Niehaus, an engineering teacher at the high school for the past four years, describes his approach to teaching: "If the subject is math, don't tell them it's math. Automatically that's going to be a problem. Give them creativity and solving problem skills to see it as something else."

The InvenTeams grant is designed to "empower students to problem solve and encourage an inventive culture in schools and communities," according to the Web site [web.mit.edu/inven](http://web.mit.edu/inven) teams.

Jessica D'Esposito, a junior at Pike Central and head of the project, believes there will be a big learning curve when deciding on the final design.

"Some of the deciding factors include cost, which design will be lighter and

which protects from elements the most like rain, sun, bugs, and mosquitoes," D'Esposito said.

C.M. Brown, also a junior and responsible for the water filtration in the shelter, had a good idea what to expect when he heard he was going to participate in the competition.

"I knew from the beginning this was going to be a big project," Brown said. "The water filtration will rid of molds, viruses and bacteria and right now I am looking at different filters that can be used."

LeAnne Kelley, principal of Pike Central Middle-High School, is in full support of the students.

"What a phenomenal concept to be a part of," Kelley said. "What I am most pleased about is their approach to the invention is for helping others. I think that society underestimates kids, so this opportunity will help prove to them they can do great things."

Niehaus hears the constant negativity there is with education and sees this as an absolute plus.

"Students have interests," Niehaus said. "Find it and develop it. It all goes back to common sense. I would have loved the opportunity when I was in school

but it was not available. Now we are able to design and create things you've never seen or heard of."

Red Cross from Vincennes, Ind., and Crane (Crane warfare centers) are two of the organizations involved with helping this project.

"Working with Crane helps us," Niehaus said. "If they put funding into it, MIT matches it."

Thirty-five high school teams have been selected for this part of the competition.

"This school year we've had 550 visitors from outside the area seeing how we are doing and the progress

we are making," Niehaus said. "We will still produce this even if it's not completed by next June, but we are confident in its completion. After all, we are leaders, not followers."

For four days in June, Niehaus, D'Esposito and D'Esposito's father, Stephen, will be in Boston for the Lemelson-MIT InvenTeams conference, where they will watch the 35 teams selected last year present their finished projects.

Niehaus believes it will help him and his students know what to expect next year.

